Getting In Step – Case Study

Friday, September 17, 2004

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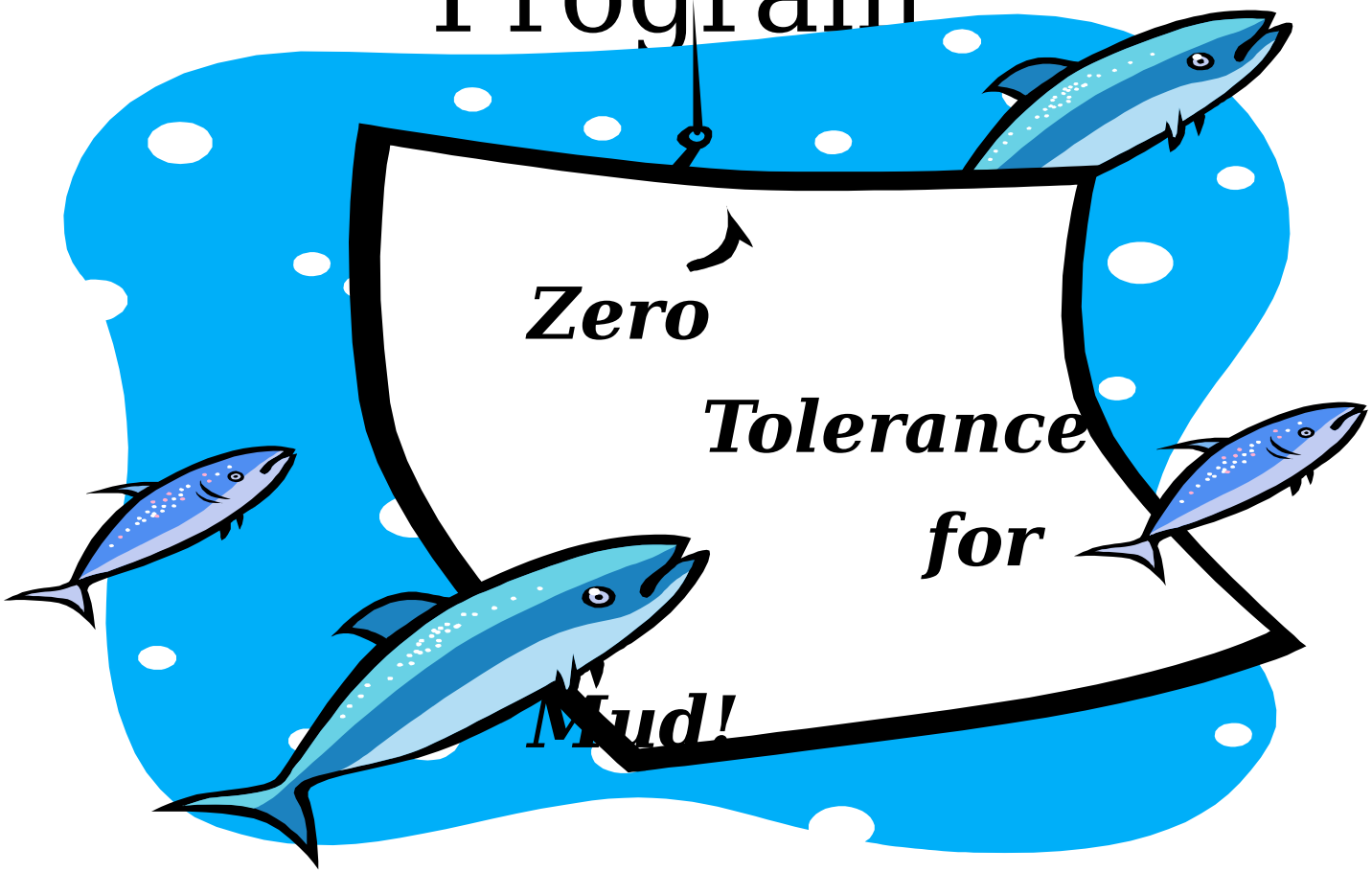
Clark County Department of Community Development

Clark County Erosion Prevention/Control Program



Clark County, Washington

A little bit about Clark County. . .

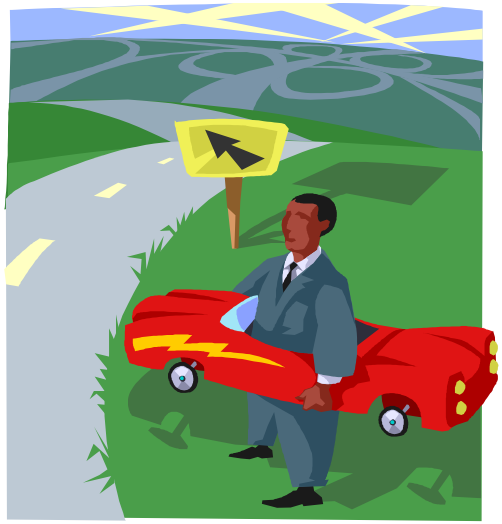
- Located in SW Washington (Vancouver/Portland metro area
- 656 square miles (map)
- Urban/rural mix – 7 cities
- Fastest growing county in state in 1990's
- Current population: 363,400
- 2025 projected population: 5-600,000
- Cross-county avg annual rainfall range: 38-80"
- NPDES Phase I Permittee (issued 8/15/99)

Pre-NPDES Scene: October 1996

- Federal regulations on the horizon
  - Clean Water Act (CWA) & NPDES
  - Endangered Species Act (ESA)
- Stormwater infiltration system failures
- Development going gangbusters
- Bare bones erosion control ordinance in place
  - Adopted in 1993
  - Enforcement triggered by customer complaints

Existing Conditions

- Staff resources limited
- Staff training limited
- Enforcement responsibility ill-defined
- Construction industry technical knowledge
- Impacts not well understood by staff or development community
- Penalties inadequate to deter violations



Early 1997 – Need for change & Time of transition

- 1993 ordinance identified as “interim”
- Recognized need for leadership role and comprehensive program
- No new funding to respond to significant “new” workload
- Required assignment of responsibility and shift of resources to better address existing conditions

New Program Vision January 1998

- **Program Coordinator role established within Community Development Department to focus on program development and implementation**
- **Broad, County-wide emphasis: new development, capital construction, operations and maintenance activities**
- **Formal assignment of enforcement responsibility**

Program Elements

- Outreach
- Code Revisions
- Research Other Programs
- Staff Coordination/Communication
- Education/Technical Assistance
- Inspection/Enforcement Process
- Monitoring Program
- Compliance Incentives

Early Critical Success Factors

- Education, Education, Educa
  - Policy Makers
  - Policy implementers = Staff
  - Development Community
  - Public
- Support from the Top (BOCC
- Coordination, Coordination, Coordination
  - Program Coordinator
  - Teams (Steering, SWAT, Mud Squad)
  - Momentum, consistency, accountability

The Teams

- Steering Committee
  - County managers that play role in Erosion Prevention
  - Role is to guide program and enhance consistency across departments
  - Public Works: Operations, Design, Capital, Environmental Services
  - Community Development: Development Engineering, Development Inspection, Building, Code Enforcement
  - Monthly, then bi-monthly meetings

Teams (continued)

- SWAT Team
  - Meets monthly
  - All staff that play a role in enforcement of the Erosion Control Ordinance
  - Development Inspectors, Building Inspectors, and Code Enforcement Coordinators & Officers
  - Focus is on education and consistent application of the ordinance

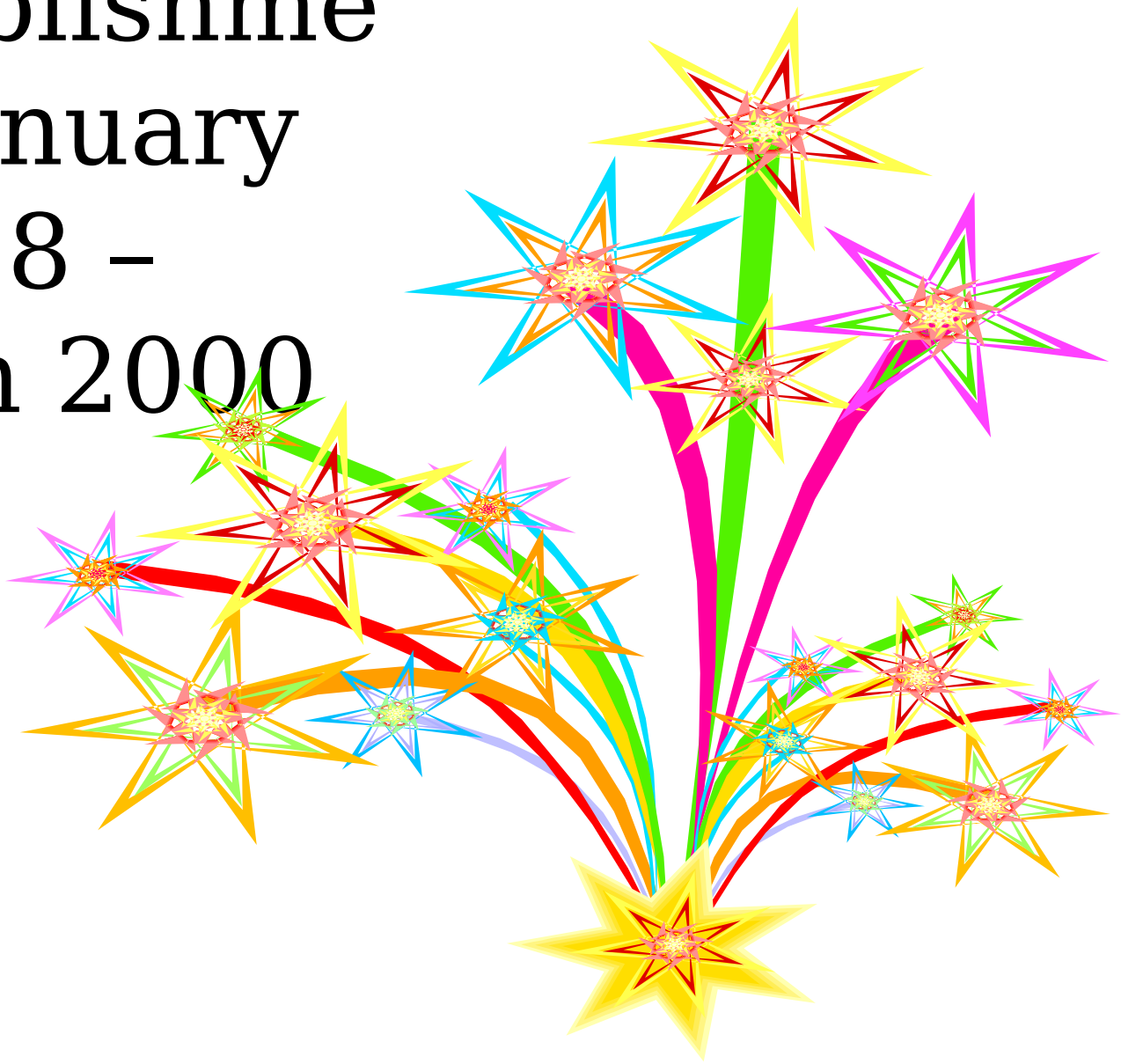
Teams (continued)

- Mud Squad
  - Formerly known as the Erosion Prevention Process Working Group (yuk!)
  - Composition modeled after Steering Committee but at lower staff level
  - Bi-monthly meetings
  - Focus on developing products and process that enhance the program

18 months later… NPDES Phase I Permit August 1999

- Created Clean Water Program and funding
- Added Community Development department staff during 1999 and 2000:
  - Erosion control inspection (2)
  - Stormwater facility inspection (1)
  - Code Enforcement officers (2)
- Amended code for equivalency with Puget Sound Manual and added certification requirement (more on that later…)

Early Accomplishments January 1998 – March 2000



Early Accomplishments

Clark County
Erosion Prevention/Control Program
"Erosion Prevention First!"

Accomplishments
(January 1998 through March 2000)

Outreach
CCHBA Newsletter Articles (February, September 98)
Erosion Prevention Focus Group Meetings (5 during June/July 98)
Code Enforcement Focus Group Meetings
Development Services Quarterly – Cover Article (2nd Qtr 98)
Program Support to NPDES Working Group (2nd & 3rd Qtrs. 98)
BOCC Work Sessions on New Program (September 98 & March 99)
Utility Coordinating Council Meetings (ongoing)
Presentation to local chapter ASCE (Feb 99)
Community Development Stakeholders Focus Group Meeting (February 99)
Panel Interview on ESA w/Dean Baker of the Columbian (February 99)
Presentation to Lacey, Olympia, Tumwater & Thurston County (March 99)
Presentation to Lacamas Lake Policy Committee (March 99)
Presentation to Camas, Washougal, et al. (May 99)
CCHBA Environmental Showcase Display (August 99)

Ordinance Amendments
Comparison and Unmet Needs analysis of 1993 Erosion Control Ordinance to NPDES/Puget Sound Manual requirements (2nd & 3rd Qtrs 98)
Revisions required by the NDPES lawsuit settlement (3rd & 4th Qtrs 99)
Revisions required by County's NPDES permit (1st & 2nd Qtrs 00)

Research
Unified Sewerage Agency - Washington County (June 98)
Lake Sammamish Water Quality Management Project
Oregon Erosion Control Conference (January 99)
IECA Magazine, Newsletters, Web Page & Conferences (ongoing)
North Carolina Inspectors Guide and Field Manual

Staff Communication & Coordination
Erosion Prevention Program Steering Committee
Erosion Prevention SWAT Team
Erosion Prevention Mud Squad
Partnership with the Clark County Home Builders Association

Staff Education/Technical Assistance
WSDOT Construction Site ESC Certification Course (March 97)
International Erosion Control Association Annual Conference (February 98, 99 ,00)

Early Accomplishments

Geosynthetics Seminar (April 98)
Erosion Control 101 training session for Community Development staff (May 98)
ASCE Erosion Control Seminar (September 98)
PCC Erosion Control Course/Fred Wright (Fall 98 & Spring 99)
Technical Assistance to Public Works Operations & Maintenance (ongoing)
Technical Assistance to Public Works Environmental Services (ongoing)
Lou's Notebook Resource (September 99)
Capital Construction UW & ODOT Erosion Control trainings (4th Qtr 99 & 1st Qtr 00)

Public Information/Technical Assistance

Drainage and Erosion Control presentation to Washington Assn of Landscape Professionals (June 97)
Partner with CCHBA on Build a Better Clark (ongoing)
CCHBA Guide to Erosion and Sediment Control (1st & 2nd Editions)
County Erosion Control segments on CVTV (October 98 & April 99)
Homeowner's technical assistance packet (ongoing)
MudFest 99 – Erosion Control for Contractors (February 99)
Interview with Channel 44 (March 99)
Community Development Foyer Display (June 99 and ongoing)
Lacamas Newsletter Article on reporting violations (November 99)
Drainage and Erosion Control segment for homeowners on CVTV (January 00)
Standard Erosion Control Plan for small parcels (January 2000)
Erosion Control Program on the Community Development Web Page (March 00)
Developing Contractor Certification Program (1st Qtr 00, continuing)
Erosion Prevention Signage (Available December 98; required January 00)

Inspection/Enforcement

SWAT Team training on citation issuance (July & October 98)
Modifications to Building Permit Inspection Card (August 98)
Erosion Prevention Inspection Report (September 98)
Erosion Control Enforcement Signage (December 98)
SWAT Team Field Trip (June 99)
Increased Fines for Erosion Control Violations (December 99)
Capital Construction providing erosion control specialist to oversee projects (1st Qtr 00)
Capital Construction revise payment specs to eliminate lump sum erosion control (1st Qtr 00)
SWAT Team Enforcement Guidelines (April 2000)
Add 3 new NPDES Erosion Control Inspection/Enforcement positions (4th Qtr 99 & 1st Qtr 00)

Monitoring

Erosion Prevention Inspection Report (3rd Qtr 98, ongoing)
Capital Construction modified inspection form to include erosion control (1st Qtr 00)
NPDES required tracking and reporting (3rd Qtr 00, ongoing)

Compliance Incentives

Recognition Program (under development)

G:\knutsonm\erosion\accomplishments.doc
4/10/00

An effective program recognizes and addresses:

- the spectrum of land disturbing activities
  - Site grading
  - Infrastructure installation
  - Joint utility trenches
  - Building construction
  - Landscaping

- the myriad players involved
  - Engineers
  - Inspectors
  - Code enforcement officers
  - Contractors
  - Subcontractors
  - Builders
  - Utilities
  - Materials Suppliers
  - Landscapers

Some useful tools

- Erosion Prevention Inspection Report
- Erosion Prevention Signage
- Certification
- Single Family Residential EC Plan
- Handouts for Homeowners
- Regional Erosion Control Awards Program

Erosion Prevention Inspection Report

DATE: _____ ACTIVITY / CRP NO. _____
FILE _____

EROSION PREVENTION INSPECTION REPORT

DIVISION: ☐ BUILDING ☐ DEV INSPECTION ☐ CODE ENFORCEMENT ☐ OPERATIONS
☐ Setback ☐ Final ☐ % Complete _____ ☐ CAPITAL
☐ Framing ☐ Other

OWNER/PERMITEE: _____
PROJECT NAME: _____ LOT NUMBER: _____
SITE ADDRESS: _____ PARCEL NUMBER: _____

GENERAL INSPECTOR: _____ PHONE: _____

Erosion prevention/control measures: ☐ excellent ☐ adequate ☐ inadequate

☐ ***This report serves as an Erosion Prevention/Control Correction Notice. Please bring site into compliance by ____am/pm on _____ to avoid enforcement action under Clark County Erosion Control Ordinance (CCC 13.27). Penalties can include issuance of Stop Work Orders, Civil Citations or Suspension of Permits***

Note: No further construction inspections will occur until Erosion Prevention/Control corrections are made, reinspected and approved.

Date of Reinspection: _____ Approved Signature: _____

INITIAL EROSION CONTROL INSPECTION: If you need a better understanding of the erosion control measures necessary to keep your site in compliance with the Erosion Control Ordinance, please call your inspector to arrange a meeting in site.

PERIMETER CONTROL

☐ Water courses, wetlands, and their associated buffers are not adequately protected.
☐ Adjacent properties are not adequately protected.
☐ Soil is flowing off site in vicinity of: _____

Perimeter control provides protection to adjacent properties and sensitive areas. Perimeter controls include physical barriers that keep migrating soil from flowing off site. Examples include silt fencing placed around disturbed areas and along the toe of slopes; and berms, swales and sidewalk subgrade barriers that direct flows to on-site containment areas. Silt fences need to be inspected frequently, and damaged sections replaced or repaired. Silt accumulated behind fences should be removed periodically.

Comments: _____

SITE STABILIZATION

☐ Exposed, disturbed soils need ground cover.
☐ Stock piles need cover and/or containment at base

Ground covers such as temporary seeding, mulching, stump grindings, jute matting or permanent vegetation slow running water and filter out sediment. Vegetative cover is preferred because it prevents or reduces erosion, adds to the aesthetic and functional value of sites, and plant root systems help to stabilize slopes. During winter and storm conditions, temporary cover such as plastic sheeting should be used to protect unstabilized areas.

Comments: _____

STREET/STORM SYSTEM PROTECTION

☐ Gravel construction entrance is: ☐ substandard ☐ contaminated or ☐ requires maintenance.
☐ Vehicles tracking materials onto street
☐ Catchbasin inlet protection requires: ☐ installation ☐ maintenance or ☐ replacement

Clean gravel construction pads at the entrance to a construction site reduce the amount of mud, dirt, rocks, and other debris transported onto roads by vehicles or stormwater runoff. By providing protection of stormwater facilities and catchbasin inlets, downstream facilities, riparian areas and fish habitat will not be damaged by sediment deposits originating from the development. Inlet protection can be accomplished by filter pillows, catch basin inserts or filter fabrics. DO NOT USE STRAW BALES! **Hosing down streets is NOT allowed**. Regular street sweeping is recommended.

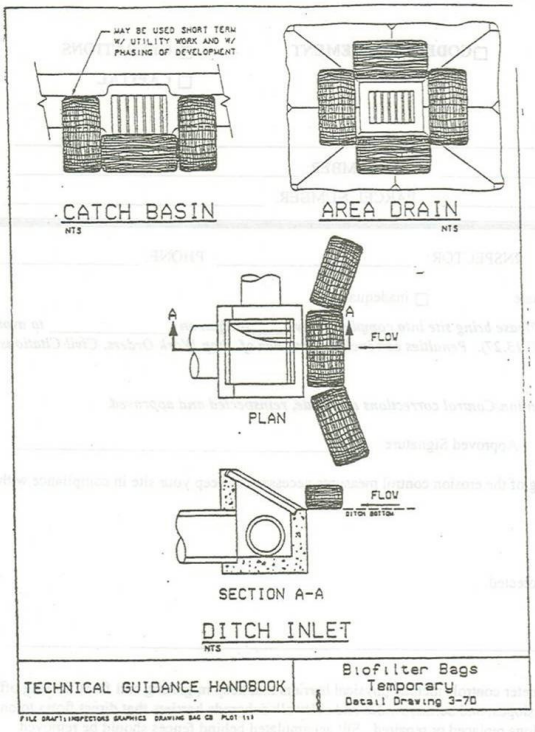
Comments: _____

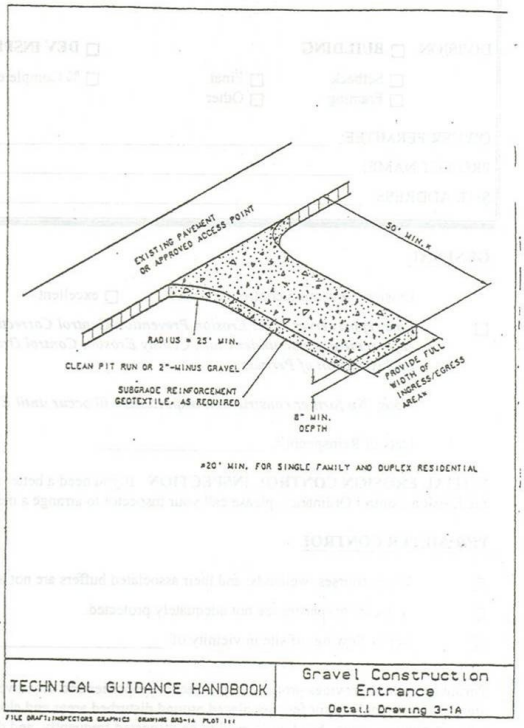
SEE REVERSE FOR EXAMPLES OF APPROPRIATE EROSION CONTROL MEASURES

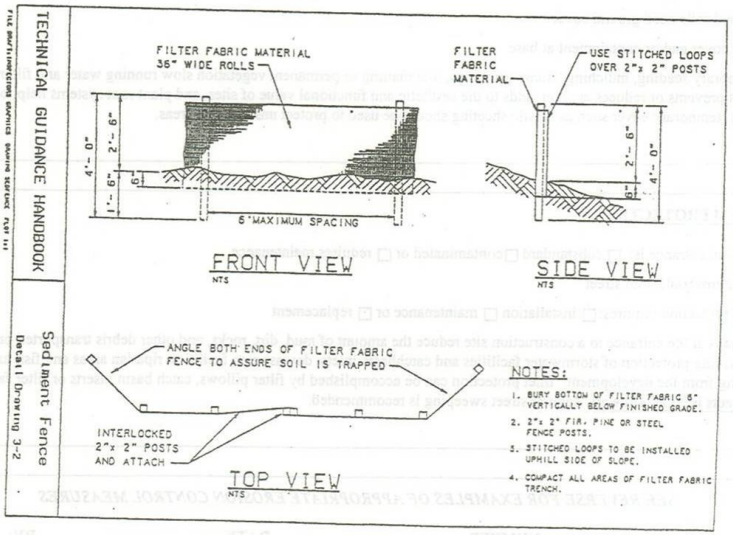
FAXED TO: _____ **NUMBER:** _____ **DATE:** _____ **BY:** _____

Distribution: White - Owner / Permittee / Violator Yellow -Project File Pink -Code Enforcement

Erosion Prevention Inspection Report



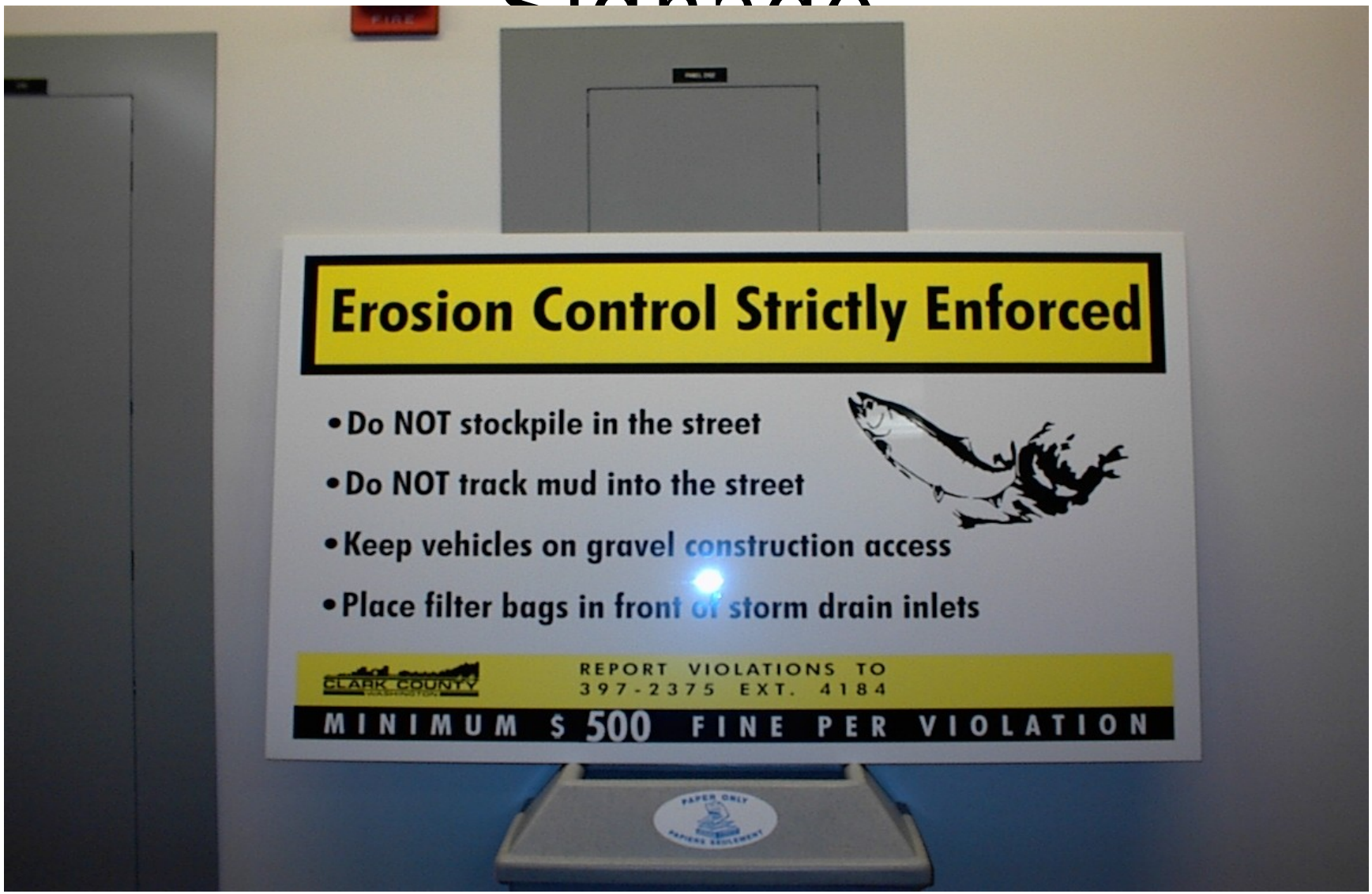

EXISTING PAVEMENT OR APPROVED ACCESS POINT
50' MIN.*
RADIUS = 25' MIN.
CLEAN PIT RUN OR 2"-MINUS GRAVEL
SUBGRADE REINFORCEMENT GEOTEXTILE, AS REQUIRED
PROVIDE FULL WIDTH OF INGRESS/EGRESS AREA
8" MIN. DEPTH
*20' MIN. FOR SINGLE FAMILY AND DUPLEX RESIDENTIAL
TECHNICAL GUIDANCE HANDBOOK
Gravel Construction Entrance
Detail Drawing 3-1A


TECHNICAL GUIDANCE HANDBOOK
Sediment Fence
Detail Drawing 3-2
FILTER FABRIC MATERIAL 36" WIDE ROLLS
4'-0"
2'-6"
1'-6"
6"
6" MAXIMUM SPACING
FRONT VIEW
NTS
FILTER FABRIC MATERIAL
USE STITCHED LOOPS OVER 2"x 2" POSTS
SIDE VIEW
NTS
ANGLE BOTH ENDS OF FILTER FABRIC FENCE TO ASSURE SOIL IS TRAPPED
INTERLOCKED 2"x 2" POSTS AND ATTACH
TOP VIEW
NTS
NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. STITCHED LOOPS TO BE INSTALLED UPHILL SIDE OF SLOPE.
4. COMPACT ALL AREAS OF FILTER FABRIC TRENCH.

Focus on Enforcement

- **Education first**
- **Tools: Stop Work Order & Citation (fines**
- **Train inspectors and give citation autho**
- **Stop Work Orders work best when there**
  penalties for violation (enacted 2002 at $
- **Penalties for erosion control violations raised**
  from $250 to $500
- **Multiple violations can result in substantial**
  fines that get attention

Erosion Prevention Signage


Erosion Control Strictly Enforced
• Do NOT stockpile in the street
• Do NOT track mud into the street
• Keep vehicles on gravel construction access
• Place filter bags in front of storm drain inlets
CLARK COUNTY
REPORT VIOLATIONS TO
397-2375 EXT. 4184
MINIMUM $ 500 FINE PER VIOLATION

A Word About Certification

- Partnered with local home builder association to develop curriculum and administer county-specific program
- Initially classroom, field portions and test
- Now video, field portions and test
- Considering replacement with WDOE approved certification required for Phase II NPDES construction permits

Single Family Residential EC Plan

Typical Erosion Control Plan for Small Residential Projects Clark County, Washington

Applicant name

File /Permit #

Location Address

Small Parcel Development Requirements:

Any person or entity undertaking a small parcel development shall prepare and implement a small parcel development erosion control plan in accordance with CCC 40.380.050 (A). This plan shall constitute compliance with this section.

(1) **Construction Access:** Construction vehicle access shall be limited, wherever possible, to only one (1) route. Access points shall be stabilized with two-inch diameter gravel to minimize tracking of sediment (mud) onto public roads. Vehicles not performing a construction activity shall not be permitted off-street. Worker personal vehicles shall be parked on adjacent streets or other approved areas;

(2) **Stabilization of Denuded Areas:** All exposed and reworked soils shall be stabilized by suitable application of BMP's, including but not limited to sod or other vegetation, plastic covering, mulching, or application of ground base on areas to be paved. All BMP's shall be selected, designed, and maintained in accordance with an approved manual. From October 1 through April 30, no soils shall remain exposed for more than 2 days. From May 1 through September 30, no soils shall remain exposed for more than 7 days. Construction materials such as lumber shall be delivered and stored on designated locations that are stabilized and protected from erosion. All sidewalk areas shall be pre-graded and stabilized for use as sediment traps. All BMP's shall be selected, designed and maintained in accordance with the BMP manual;

(3) **Protection of Water Bodies and Adjacent Properties:** Water bodies and adjacent properties shall be protected from sediment deposition by appropriate use BMP's. Each owner, builder, or permit holder shall install and maintain inlet protection on storm drain inlets impacted from their site. Appropriate BMP's shall include vegetative buffer strips, sediment barriers or traps, dikes, mulching, or a combination of these measures as approved by the Director.

(4) **Maintenance:** All erosion and sediment control BMP's shall be inspected, maintained and repaired as needed to ensure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with the Puget Sound Manual or approved site plans. A maintenance log for private facilities shall be provided and kept as a permanent record. The maintenance log shall be in a designated on-site location. Uncompleted construction sites shall be inspected by the applicant at least once a week and after each rainfall and shall be repaired if needed. An inspection log shall be maintained form the beginning of construction until the completion of the warranty period and final project inspection.

I have read this Erosion Control Plan and hereby submit it as the plan for the above described development. I understand that it is my responsibility to comply with these requirements. Failure to comply with this Erosion Control Plan may result in Clark County imposing a Stop Work Order and taking enforcement action under Title 32.

CLARK COUNTY, WASHINGTON

Applicant Acknowledges **Date**

Single Family Residential EC Plan

NOTES

(1) Do not disturb more area than needed for construction requirements.

(2) All erosion control measures shall be in place and in working condition prior to disturbing and exposing any soil surfaces (i.e. silt fence, construction entrance, sedimentation barriers, sedimentation traps).

(3) Devices are to remain in place during construction until all disturbed soil surfaces have been stabilized.

(4) All disturbed soil surfaces are to be stabilized. Stabilization of disturbed soil areas will consist of; hydroseeding or handseeding, mulching, placing of erosion control blankets or plastic in landscaping soil areas. It will also consist of paving and concrete work in driving, parking and sidewalk areas. All seeded areas are to be fertilized, watered and maintained to enhance the immediate re-growth of vegetation.

(5) Maintain the erosion control measures throughout all phases of construction. Maintenance shall include, but not be limited to:

(a) Verifying that all areas are graded such that all runoff is directed to a sedimentation trap facility before discharge.

(b) Removing trapped silts at silt barriers, silt traps, or point of accumulation.

(c) Providing additional protective measures, as required, due to job site conditions.

(d) Monitoring of vehicles leaving the site to minimize transmission of loose soils to the public roadways.

(6) Construction entrance shall be a minimum of 15 ft. width and 20 ft. long. See detail this sheet.

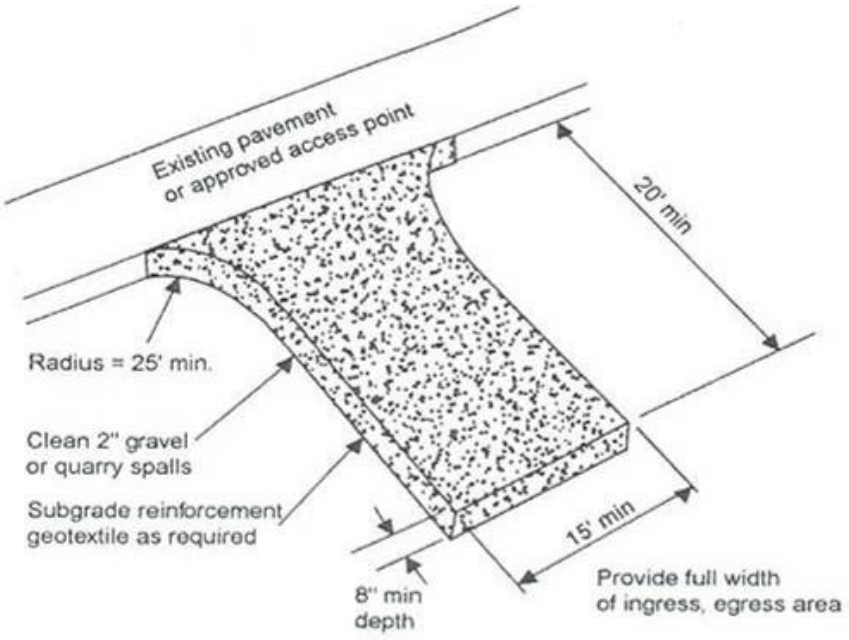
(7) Place filter fabric silt fence along the perimeter of low areas of each lot. Maintain until end of disturbance and establishment of vegetative cover.

(8) Minimize disturbance of existing cover and seed exposed soil as soon as possible to minimize erosion.

(9) Refer to the BIASW "Builder's Guide to Erosion Prevention & Sediment Control" which is available for purchase from the Building Industry Association of Southwest Washington located at 5007 NE St. John's Road, Vancouver, WA. Phone: (360)694-0933.

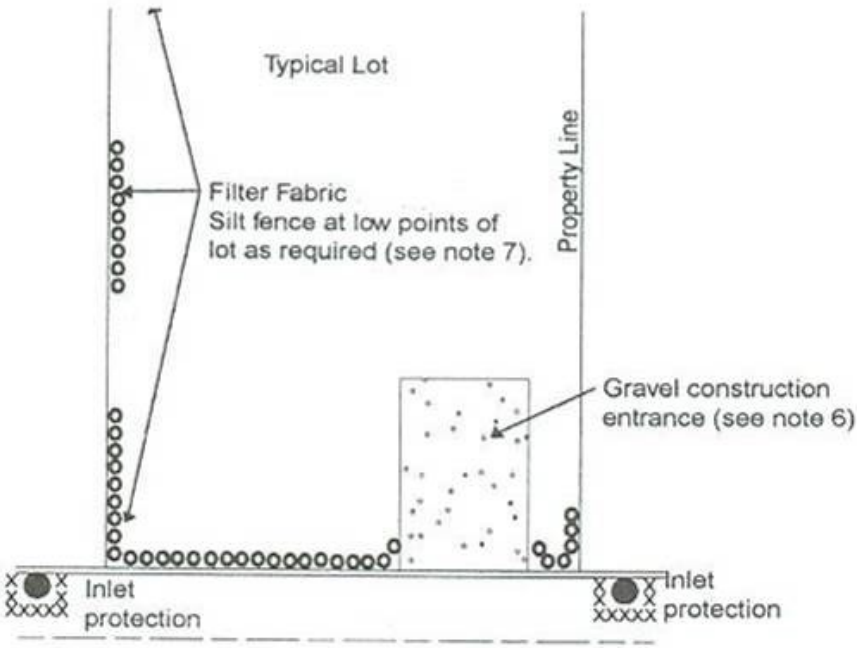
(10) Any soil or debris transported onto roadways and sidewalks shall be cleaned thoroughly. Significant deposits shall be removed be shoveling or sweeping. Washing is only allowed after sediment is first removed in this manner and all drainage inlets and down stream facilities are protected.

Single Family Residential EC Plan



Gravel Construction Entrance

Not to Scale



Typical Erosion Control Plan

Not to Scale

Single Family Residential EC Plan

Erosion Prevention and Control Log

Project

Certified Erosion Control Contact

Last Rain Event

Last Erosion Control Inspection

Erosion Control Maintenance/Action Taken

Comments

Erosion prevention and control log must be filled out and kept on site as per Clark County Code 13.29.400(D) and 410(K)

Homeowner's Handout

Congratulations on your new home!

Your help is needed to ensure a clean and healthy environment.

Here's how you can help...

EROSION CONTROL:

Building a new home and moving in is stressful. Landscaping is often the last thing we do. Until your yard is landscaped, erosion prevention and sediment controls are important to ensure a healthier environment.

What is erosion? Erosion is the displacement of soil particles by rain and wind. With new construction bare soils are subject to erosion. The sediment coming off the soils impacts drainage systems and ultimately pollutes streams and rivers.

How does sediment affect water quality? Soil particles (sediment) pick up harmful nutrients, bacteria, heavy metals, oils, and travel into our waterways through storm drains affecting our water quality.

How can I prevent erosion? By covering the bare soils, erosion can be prevented. Often you will see plastic sheeting over stock piles, or straw mulch covering soils. This prevents the wind and rain from displacing the soils and helps keep soils on site. Sometimes a black fence, called a sediment fence, is installed around your yard. A sediment fence helps stop soil particles from entering the sidewalk, street or adjacent property. Please keep this maintained and in place until your landscape is installed.

Other sediment controls: You probably have some types of bags or pillows around the storm inlet at the curb. These are commonly referred to as bio filter bags. They help catch sediment and pollutants, and slowly allow the water into the storm drain. Although they can be unsightly, they serve an important function and need to be left in place. Once construction in the area is complete and the yards are landscaped they can be removed.

Homeowner's Handout

When installing landscaping, please keep landscape material on your property and not on the sidewalk or street. Sweep and shovel any loose material off sidewalks and your driveway. **Do not** wash material into the storm drains.

WATER QUALITY:

Our water quality has been affected by our everyday activities. The storm drains often go directly to creeks, so it is important we do not wash sediments, oils, or dump other materials into them.

You may have only a ditch which runs in front or next to property which may be very shallow. Often these are engineered bio filter swales that are designed to filter storm water and help treat the water catching pollutants before entering a wetland, creek, or storm pond.

Altering these ditches may require approved engineering plans and can be very costly. So before installing rock or removing grass, etc. it is important you check first with Code Enforcement, (360) 397-2375 ext. 4916 or 4931, to see what you can and cannot do.

DID YOU KNOW?

- A rain drop hits the ground at 20 mph.
- Slowing the velocity of water by 50 percent slows the erosion by 75%.
- Sediment is considered a pollutant which impacts water supplies, fish, and wildlife habitat.
- Only one percent of the total water on our earth is readily available for our consumption.

FOR MORE INFORMATION:

- Erosion control staff can answer your questions about erosion prevention and sediment control. They can be reached at (360) 397-2375 ext. 4916 or 4931.
- The Erosion control ordinance is located at www.clark.wa.gov. Select Engineering Services from the Department and Programs menu. Then click on Erosion Control Program and scroll down for erosion control regulations.
- Clark County Solid Waste provides information about household and business hazardous waste, waste reduction, recycling, composting and other solid waste issues. Their number is (360) 397-2375 ext. 4016.
- Department of Ecology: Vancouver Field Office provides information on business generated waste and water quality issues. They can be reached at (360) 690-7171
- The Recycle Hotline provides information about recycling non-toxic products and the disposal of household hazardous waste products. Call them at 1-800-Recycle.

Thank you for your help in
protecting our environment.
Enjoy your new home.

Clark County has strict erosion and sediment control laws. If you have questions, feel free to call us at (360)397-2375 ext. 4916 or 4931.

Regional EC Awards Program

- Multiple jurisdictions in the Vancouver/Portland Metro area
- Started in 2001
- Recognizes developers, contractors and builders that set outstanding examples of erosion prevention and standards of practice
- Very popular and well covered by media

Persistent Issues that need attention

- Role of adequate erosion control plan review and addressing changing needs as site conditions change
- Consistent inspection and enforcement
- Bridging gap between scope of SWPPP and local ordinance requirements
- Focusing on prevention and being proactive rather than being reactive

Things that have proven difficult

- Sustain the county-sponsored certification course
- Develop a compliance incentive program
- Methodically evaluate program effectiveness

A few resources

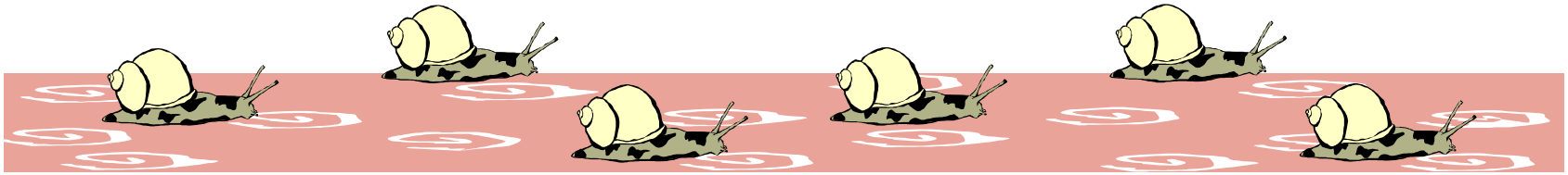
Partnerships – Building Industry Association

Technical Assistance – International Erosion Control Association

Educational – Home Builder's Guide to Erosion Prevention and Sediment Control (Contact Mindy at 360/694-0933. Cost $10)

Positive Observations

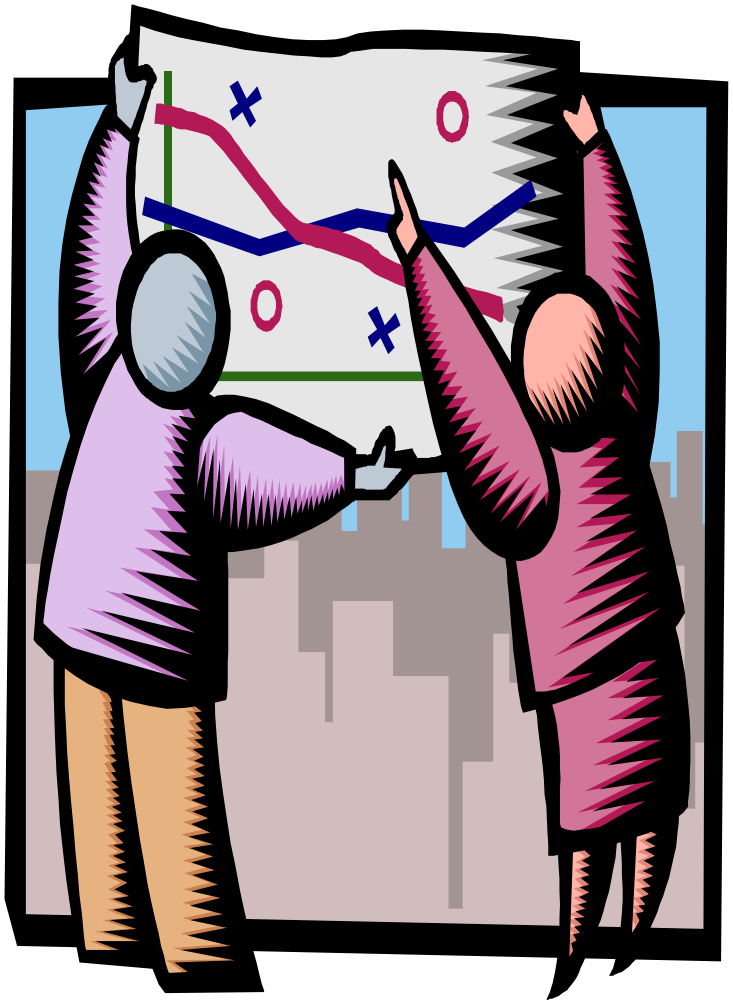
- Development/Construction community feedback
- More technical/educational resources available locally
- Field observations
- Fewer complaints



(The pace may leave something to be desired, but things are getting better…)

Lessons Learned

- Prevention is key
- Erosion control is a moving target
- Early program development takes a lot of time and effort
- Eventually it becomes institutionalized
- Evaluating program effectiveness is not easy



Closing Remarks

The program continues to evolve - adjustments to meet changing needs and regulatory environment